

MEETING MINUTES (FINAL)
HABITAT CONSERVATION PLAN
Technical Advisory Committee
Wednesday, May 2, 2007, 1pm to 3pm
Arizona Game and Fish Department
Tucson, Arizona

ATTENDEES

City of Tucson Technical Advisory Committee: Rich Glinski, Guy McPherson, (University of Arizona), Dennis Abbate (Arizona Game and Fish Department), Ralph Marra (Tucson Water Department), Trevor Hare (Sky Island Alliance), Mima Falk (USFWS)

Attendees:

Leslie Liberti, (City of Tucson – Office of Conservation and Sustainable Development)
Ann Audrey (City of Tucson – Office of Conservation and Sustainable Development)
Geoff Soroka (SWCA)
David Jacobs (Arizona State Land Department)
Scott Richardson (USFWS)

1. Meeting Minutes

Leslie asked for comments regarding the April 18 Minutes. Trevor wanted to clarify that the tortoise seen at CAVSARP was not recorded on the AGFD map, but the occurrence will eventually be recorded along with other data that Julia Fonseca (Pima County) is collecting. Tucson Water had no comments on this set of minutes. So these are accepted, pending Trevor's requested edit. As for the April 4 minutes, Tucson Water is still reviewing these, so they are not able to be accepted at this time.

2. Updates

Pima County BOS passed a resolution related to sustainability. This resolution adopts LEED Silver for all new buildings erected by Pima County or those erected using County bond funds. Alternative fuels will be adopted for a portion of their fleet. There will be some incentives available to contractors for construction conducted in a sustainable manner. The County will also dedicate staff to sustainability, including one coordinator and one other staff position, along with various other provisions.

Rich talked to Ken Kingsley regarding the mesquite mouse situation, and Ken confirmed that it is definitely a distinct species by genetics and behavior. It is more widespread than previously thought but can sometimes be isolated, and these isolated populations can fluctuate greatly. Xeroriparian and mesoriparian associations provide the key habitat components for mesquite mouse. So if there is sufficient preservation of xero- and meso-riparian habitats, then there is no need to protect this species as it is habitat-dependent. This perspective concurs with Phil Rosen's conclusion that it is more widespread than originally thought. The City would only need to maintain close continuity along washes (no large road crossings). Feral and domestic cats could pose a threat. In past experiences, Ken did not observe mesquite mice in areas containing good

habitat that was isolated if feral cats were present. He also found the mice around mesquite stands that were not in good xeroriparian habitat, but the washes they were found in were continuous and contiguous with larger washes. These areas represent their historic range. There is no evidence that they are rare or in trouble, but populations could decline quickly in areas where habitat is disturbed, for example, along Tanque Verde Creek and the West Branch of the Santa Cruz, where mesquite dominated vegetation is discontinuous. If wash ordinances are not sufficient, then the only way to protect the continuity of habitat is through the mouse being protected. In conclusion, the recommendation is to not keep mesquite mouse on the list. Dennis A. asked for documentation of Ken's opinions for the record. Leslie noted that we also have notes from Phil stating that there was no need to protect this species within the context of the HCP.

****Rich will contact Ken to request documentation.**

Ann reported that the buffelgrass is greening in Avra Valley, and that Tucson Water has begun spraying. Some of the area has also been burned, but the process is a slow-moving one and so things are moving slower than expected. A buffelgrass work plan will unfold over the next couple of years regarding the effectiveness of the three treatment methods. The TAC feels that seed bank studies are necessary. **We need to get Travis Bean on board for seed bank/seed trapping studies.**

Ann then gave an update on the Lee Moore Wash Basin study. Eventually, an exchange of data will need to take place between COT and Pima County regarding their study and ours, particularly the GIS layers. Ann wants to dedicate time on the July 16 TAC meeting agenda for a guest speaker from the Lee Moore Wash Basin Study team to attend and give a summary of their progress.

Phil Rosen submitted many desert tortoise locations to the workgroup. Julia Fonseca is looking at 3 habitat models, including sites where caliche layers intersect washes. **Trevor can send the first iteration of maps to COT.**

3. Southlands Discussion

Leslie revisited the concept of grouping species into cohorts and referred to a map displaying YBC, PTBB, and CFPO habitat areas. She reviewed CFPO habitat and non-habitat areas, buffers around riparian areas for PTBB, and YBC habitat. Dennis A. had previously questioned how CFPO habitat was defined, so Scott came to today's meeting to address this. The question was related to an area dominated by creosote which Dennis would consider to be marginal dispersal and wintering habitat. Dennis asked that this be described as "low-quality habitat" instead of "non-habitat". Scott noted that female owls equipped with transmitters have traveled through what appears to be poor quality habitat and agreed that "low-quality habitat" is a better description of the creosote-dominated area. He said the bottom line is that we should not waste resources protecting these areas.

Rich asked how this area could be considered good habitat for PTBB if it is "low quality" for CFPO, assuming that "edge" habitat constitutes areas where good riparian habitat meets the surrounding area. So Rich questioned if PTBB habitat should be mapped here. Trevor noted that there can be "good" riparian habitat such as tobosa swales, though these may not constitute good PTBB habitat. Scott reported that a recent meeting on PTBB indicated that bats were foraging in a salt flat adjacent to desert scrub in Nevada around the Great Basin National Monument. Scott said that PTBB are not endangered there, but have shown some reductions; they may have been a C-2 species. Leslie handed out Linwood's response to questions posed to him after the last TAC meeting. Leslie explained that the previous model had captured habitat, except for riparian areas.

Linwood said that the riparian/upland edge would be the most beneficial habitat, so we started working with different-sized buffers around riparian areas. Linwood thought that a 50-foot buffer was sufficient, except that lights, houses, cats, and noise disturbance need to be accounted for. Scott said that PTBB are not urban bats, so a 50-foot buffer around riparian areas may not be sufficient. Leslie asked what level of urban development causes PTBB numbers to decrease. Scott referenced a range of bat species that do well in urban areas, noting that typical habitat for PTBB would be low density development for habitation to occur. However, he did note that PTBB may use buildings as night roosts. Trevor asked if the typical CFPO management density of 1 house per 3.3 acres (standard SR zoning in Pima County) might be sufficient. Scott said that PTBB is unlikely to roost in the Southlands planning area, so he is just talking about foraging habitat when discussing this species. PTBB roost in small groups from a few dozen to several hundred, thus requiring many available roosts in an area and they do a lot of roost shifting.

Leslie said that maybe buffers are not the best approach for PTBB. Scott said that we should focus on good habitat, as higher plant diversity is what PTBB need. We may not want to protect a wash with a narrow buffer, but instead choose a larger area and screen out threats such as cats, noise, etc. The bottom line for PTBB habitat is: 1) that it would be more effective to eliminate the “blue” areas on the map; and 2) the “purple” and “green” areas appear to illustrate better habitat. Thus, Leslie stated that this seems to validate the concept of establishing “habitat tiers”. Rich asked if the Santa Cruz River contained good habitat for PTBB. Scott said that all of the “red” areas on the map, as these contain good vegetation structure, would be good for bats.

Geoff asked, referencing Scott’s 2/21 remarks that USFWS intends to survey roost sites more often, if USFWS will be surveying the soil piping caves along Cienega Creek. Scott replied that USFWS is focusing on LLNB and that, as far as he knows, Mexican long-tongued bats are the only species that have been found roosting in these caves. Trevor wondered if Pima County would pick up the tab for future monitoring along Cienega Creek.

PPC and NSPC

Leslie noted that we have data from Marc Baker on his recent cacti surveys in the Southlands. The survey routes were on State Land and BLM lands (maps illustrating the survey areas were distributed). He started with 200-meter transects, then expanded the transect size to 400 meters to get more coverage. He also added some transects. Another map was handed out showing NSPC and PPC locations and buffer areas. Dennis A. asked Mima to clarify the method. The polygons on the first map show the lines that the survey crew walked. The crew walks a 200-meter strip, then doubles back to create the 400-meter total. The crew provides complete coverage along the 400-meter wide transects. Mima mentioned that Marc’s methodology is written up if the TAC wants to review it.

Leslie explained that the yellow dots are HDMS data. The maps include data from April and June 2005, and the new data from 2007. The blue polygons show 2007 and HDMS database occurrences, with a 1-km buffer around the outside. The 1-km buffer was somewhat arbitrary, but intended to represent the maximum distance the cactus pollinators would occupy around the cactus themselves. On the east side of the study area is where the NSPC habitat exists. ASLD land to the north had no PPC or NSPC sightings. So Marc’s map seems to represent the upper limit of PPC’s range.

Rich asked Mima what percentage of the total range of PPC is contained in the Southlands planning area. Mima answered that the total range is not known. She noted that the yellow dots shown on the map are mostly developed now; so much of the best habitat is gone. PPC range west into Altar Valley, the Southlands representing the eastern and northern edge of the

distribution. The range extends from approximately 5 miles north of I-10, east to Vail, and then all the way south into Mexico. The west side of the range extends to points south of State Highway 86 (Ajo Highway). Leslie put up a map of habitat data. Trevor asked about the fate of cactus found in MSDS plant surveys. Mima said that most of the individuals transplanted probably died, and that many may have been bladed. Mima said that the density of PPC found, as illustrated by the yellow dots, simply indicates intensive survey areas. Many areas on the map have not been surveyed yet, and may as well contain dense populations of PPC. Mima said that new development around Corona de Tucson occurred in a high density area that is not recorded in the HDMS database. Guy asked how the cactus map was registered to the study. **Ann to check with GIS staff to get this answer.** Guy noted that the harder you look, the more you find. Mima said that each time you look, you find more.

Leslie reported that Marc felt he was seeing higher densities along I-10 for both species, perhaps roads may have been a deterrent to predators. He observed that there were not many in the north-central area of the bottom half of the southlands. Trevor suggested that the non-cactus land was more degraded, but Mima pointed out that Ryan Airfield is degraded and yet still has cactus. Grazing levels, access roads, burning history, etc. can all be correlated to cactus presence. Mima said that this type of information was not collected by Marc. PPC have been found in disturbed areas, usually seen 10-20 years after the disturbance event. Altar Valley has been heavily grazed for quite some time. Dense PPC locations in Altar Valley include both grazed and un-grazed areas. Mima said that the longevity for individual PPC is around 10 to 15 years; there is a fairly high rate of mortality. Rich asked about transplanting success. Mima said that they are easy to uproot, but have thin surficial roots that are easy to break, and they also have a tap root system that extends deep into the soil. Thus, transplanting is difficult as sometimes they rot from too much water, other times they are not given enough water, or at the right times. Mima said that when people work hard to do it right, transplanted PPC still usually die.

Leslie said that we may not be able to differentiate between high densities and “really” high densities. Their populations can shift on a decadal scale. Leslie suggested that we develop tiers of land that are “good, medium and poor”. Mima has a hard time quantifying which habitat is important to the species using “good”, “medium”, and “poor” categories. Leslie asked if Marc’s polygons are an accurate representation, or whether land outside polygon areas may also have important PPC populations. Mima said that she would need to study more detailed mapping to answer this and said that the best predictor of where to find the cactus is the areas where they are found today, since these areas obviously can support them. Typically, these areas contain suitable pollinators, in order to move seeds across the landscape. The main pollinator of PPC is well documented, but we do not know the viability of seed over time or the germination triggers. After 6 years of monitoring in Altar Valley and another 12 years on the Coronado National Forest, we have yet to observe a germination event.

Rich asked about conservation strategies and whether there is already enough land set aside via existing federal lands. Mima said that PPC is more associated with alluvial valley bottoms, and thus is not found in high densities on federal land. Some PPC are found on federal land in Santa Cruz County, near Duquesne Road. Buenos Aires NWR has some PPC, although not all of them have necessarily survived the various masked bobwhite quail management practices. So, federal land alone is not sufficient for PPC protection. Trevor said that this justifies protecting areas, within 1km of each other, similar to the CLS system discussed at the last meeting. The tiers for this species will be related to ridges and areas farther down the ridge.

Leslie said that, given the larger-sized regional picture, conservation areas can be the starting point for getting more specific about protection of sub-areas within these big areas. Leslie said

that protection could be accomplished through: 1) existing ordinances only; or 2) ordinances plus additional protection; or 3) a regional land system. As an example, Leslie said that the ordinances might suffice for the low quality area in the central part of the map, but we may also want to request that data be compiled on PPC presence to be used for adaptive trials.

Rich asked about the germination requirements for PPC, and whether abrasion by being carried by water across the landscape is part of this. Mima said that they germinate easily in greenhouses, but recruitment in the landscape is limited by unknown conditions that are for some reason stifling germination. It is possible that they germinate, but don't survive. Mima said that the fruit is generally near the plants, and pups are typically around the plant, but we don't know if they typically recruit from seeds or cloning. Ants are typically found on PPC, but we do not know if they move seeds. And it does not appear that seeds need to go through animal gut. Rich said that, if scarification is necessary, it would require sheet flow areas, uninterrupted by roads. Mima said that, if PPC seeds needed scarification, this would be seen in greenhouse germination but this does not seem to be the case. The principal germinator is a native bee. These are ground nesting native bees that occur in colonies in the ground, but they may be individually solitary. Mima can provide a copy of Chris's thesis for details on PPC pollinators.

Mima noted that she wants to see more integration along the landscape for the species being discussed. For CFPO, we don't have many individuals to base information on, and the bat information is also patchy. She suggested large landscape pieces that integrate needs for multiple species. Maybe we could look at open spaces with limited amount of use (so as not to be completely cut off) so there would be reserves for more than just one species. She believes that we shouldn't delineate fragmented areas based on individual species. Continuing this train of thought, Leslie pointed out that LLNB, NSPC, and BUOW have similar habitat needs. Leslie noted that the planning area will have a huge amount of development regardless of which areas we would like to protect, and we can expect some portions to be "high density". She wants to decide which areas will need to be sacrificed to development for the overall good of all species involved, so she is trying to eliminate areas that are less critical for species.

Trevor said that we could delineate areas having a variety of different preservation permutations; some riparian, some upland, and some with various combinations of the two types. Leslie mentioned that we have few enough species that if we overlay habitat, riparian areas show up as good, and some upland areas also show up as good. Trevor noted that the reason some areas show no cacti present is only because Marc did not survey private lands. Leslie noted that the eastern side of the bottom portion of the Southlands includes tortoise dispersal habitat, Cienega Creek, high cacti density, and a CFPO corridor.

Scott pointed out that there are areas already containing infrastructure, and this is where development is most likely to occur, and so maybe we should try to concentrate on setting aside areas having less or no infrastructure. Leslie showed a map of planned developments, which also displayed the Davis Monthan Air Force Base (DMAFB) boundary and the Tucson International Airport (TIA) flight zone area. DMAFB requests that as much of the area surrounding the base is set aside as possible, including the exclusion of industrial. They want to avoid any encroachment on their lands, also voicing concerns regarding potential security issues for the base, liability, etc. Three Diamond Ventures developments are outlined on the map. Low intensity development is illustrated as blue, medium to high is purple, and the yellow patches are resource areas that would be set aside. Leslie handed out the policy language associated with these developments.

For the Swan Southlands development, 95% of all Important Riparian Areas (IRAs) and the 100-year floodplains for washes having 250 cubic feet per second (cfs) or more are to be protected.

Roadway crossings will maintain the width of floodplains. Suitable habitat for PPC will be surveyed prior to writing the preliminary development plan. Lot configuration will impact as few cacti as possible in areas mapped as medium to high density PPC habitat. Mima said this simply means that there will be cacti in people's backyards. For the Rocking K development, there is higher density (more intense development) planned to the south than in the north. A comparative analysis between the site plan and the Conservation Land System (CLS) will be conducted. The Hook M will be developed at a medium to high intensity, with only the far northeast tip of the development located within the CLS, and all IRAs will be protected. There are some adjacent reserves, including the Nation to the west. We can certainly also expect development to occur along Nogales highway. **Ralph pointed out that PAG has population density estimates for the next 30 years and we could get this information to add to maps. He also noted that these are continuously subject to change but PAG's spatial portrayal has become the regional standard for purposes of transportation, water supply, and wastewater planning.**

A discussion ensued regarding whether the areas to protect should be influenced more by where development is likely to occur, or where habitat is best. Mima said that some areas will be lost to development regardless of our recommendations, and that we need to know this up front. Trevor said that we should focus on the biology and hope that infrastructure will honor our suggested set-aside areas. He believes that the biological alternatives should be our starting place, and that population and infrastructure plans can be overlaid with this to note areas where there are conflicts, or areas where the two objectives agree. Mima said that this is a useful approach and that we need to have information for both of these categories: constraints and habitat. Leslie asked how we should break down data from a biological perspective. She suggested that we at least identify all of the areas that we cannot do without, including: 1) the high-density NSPC patch to the east, which also serves as a corridor for tortoises and CFPO, and as PPC habitat; 2) the interior portions of all watersheds; and 3) the peninsula surrounded by Saguaro NP East.

PAG appears to have contours of population density based on a transportation economic analysis zone model, and ASLD has its own model, which can be different from PAG's estimate. Ralph worked previously with Dave Taylor who is now at PAG, who said that the rule of thumb is that future development, and thus infrastructure, will typically follow existing roads. So we should look at a map of existing road locations. We should also find out where Dave Taylor believes growth will occur and thus benefit from his many years of experience. We should also look at a map of existing water lines, existing sewer lines, and projected water and sewer infrastructure. Per Ralph, future water system projections are based on land surface elevation contours, which reflect water pressure zones. When looking to the longer term, TW may not have the exact locations for facilities at this time but it does have some idea about what pressure zone areas will need new infrastructure. We also need to look at the Southeast arterial study, and see if RTA may provide relative priority population densities projected over time.

Trevor asked about adding sewer and water lines and other infrastructure improvements that we could use to predict where development is going to occur.

4. Topics at upcoming meetings

5. Call to audience

No members of the public were present at the meeting.